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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,648

07/01/2004

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GK-ZEI-3233/500343.20250

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11/24/2008

EXAMINER

CHONG, DAVID W

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

11/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,648	Applicant(s) GLUCH ET AL.	
	Examiner DAVID CHONG	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,21,25-40 and 44-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's response on September 8, 2008 filed in response to the Office Action dated February 14, 2008 is acknowledged. Claims 20-21, 25-40 and 44-57 are now pending.

Specification

2. The Office acknowledges the addition of paragraph [0081.1]. It does not constitute new matter because they originally in claims 33-36, 38, 52-55 and 57 with regard to the "spectral weighting" and originally in claims 36-37 and 55-56 with regard to "resistor".

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 57 recites a means for adjusting the weighting curve which is not recited in the specification.

Claim Objections

4. Claim 38 recites the term "the weighting curve". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps needed to create a weighting curve of the weighted channels.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 20, 21, 25, 27, 30-32, 39, 40, 44, 49-51, 55, and 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. WO 00/58715 ("Cooper") in view of U.S. Patent No. 6,483,112 to Lewis further in view of Drukier et al. US 5,866,907 ("Drukier").

10. Regarding claim 20, Cooper teaches a method for identifying fluorescing, luminescing and/or absorbing substances in the analysis of samples (see Abstract), the

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method comprising providing a sample to be examined (p. 1 lines 28-29); splitting a sample light into its spectral components (p. 2 lines 18-19); and wherein the samples are measured sequentially in microtiter plates (p. 2 lines 8-10). Cooper is silent as to providing at least one standard sample; recording a spectrum of the at least one standard sample; and determining spectral regions of interest in which measurement is carried out automatically or by input means, based on measured standard spectra and summing the detection channels of at least one spectral region of interest. Lewis teaches a cell array being analyzed by a spectrometer and that at least one of the cells can include a reference substance (col. 2, lines 20-21). Drukier teaches a photon detector where the spectrum is analyzed to determine the region interest automatically during a calibration routine (col. 42 lines 56-57) and summing the detection channels of at least one spectral region of interest (col. 54 lines 24-25). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a standard sample and use it to determine spectral regions of interest automatically and sum the detection channels of at least one spectral region of interest since it is common in the art to use a standard substance to determine wavelengths of interest.

11. Regarding claim 21, Cooper teaches that blank wells typically have some degree of autofluorescence which lead to false positive and negative results. At the time of the invention it would have been obvious to a person of ordinary skill in the art to arrange at least one blank sample on the sample carrier in addition to the substances to be examined in order to account for fluorescence attributed to the blank sample.

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12. Regarding claim 25, Drukier teaches carrying out a switching off groups of channels (col. 54 lines 7-8).

13. Regarding claim 27, Cooper teaches taking an average of the samples (col. 68 lines 8-9) but does not teach taking the average of a plurality of samples for STD and/or BLK. At the time of the invention it would have been obvious to a person of ordinary skill in the art to take an average of the STD and/or BLK sample since averaging samples is a common way of processing data.

14. Regarding claim 30, Cooper teaches providing a dispersive element which is spatially resolving in at least one direction. (p. 3 lines 18-21).

15. Regarding claims 31 and 32, Cooper teaches a PMT detector (p. 5 line 2).

16. Regarding claim 39, Cooper teaches an arrangement for identifying fluorescing, luminescing and/or absorbing substances in the analysis of samples (see Abstract), the arrangement comprising: a means for providing a sample to be examined (p. 1 lines 28-29); means for recording a spectrum of the at least one standard sample (p. 10 lines 13-14); means for splitting a sample light into its spectral components (p. 2 lines 18-19); wherein the samples are measure sequentially in microtiter plates. Cooper is silent to at least one standard sample; means for determining spectral regions of interest in which measurement is carried out automatically or by input means, based on measured standard spectra and a means for summing the detection channels of at least one spectral region of interest. Lewis teaches a cell array being analyzed by a spectrometer and that at least one of the cells can include a reference substance, i.e. a standard sample (col. 2, lines 20-21). Drukier teaches a means for determining spectral regions

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of interest in which measurement is carried out automatically based on measured standard spectra (col. 42 lines 56-57); and a means for summing the detection channels of at least one spectral region of interest (col. 40 lines 44-46). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a standard sample and use it to determine spectral regions of interest automatically and sum the detection channels of at least one spectral region of interest since it is common in the art to use a standard substance to determine wavelengths of interest.

17. Regarding claim 40, Cooper teaches a means for providing at least one blank sample arranged on the sample carrier in addition to the substances to be examined (p. 1 lines 28-31).

18. Regarding claim 44, Drukier teaches a means for carrying out a switching off groups of channels (col. 54 lines 7-8).

19. Regarding claim 49, Cooper teaches a dispersive element which is spatially resolving in at least one direction (p. 3 lines 18-21).

20. Regarding claims 50 and 51, Cooper teaches a PMT detector (p. 5 line 2).

21. Regarding claims 55 and 56, Drukier teaches a summation carried with analog data processing by means of a resistor cascade (multiplexed, col. 55 lines 12-19) capable of being adjusted. At the time of the invention it would have been obvious to a person of ordinary skill in the art to sum or weight signals by means of a resistor cascade to handle multiple signals

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22. Claims 28-29, 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper/Lewis/Drukier further in view of US 2003/0139886 to Bodzin et al. ("Bodzin").

23. Regarding claims 28 and 29, 47 48 Cooper does not teach carrying out a spectral unmixing according to at least two components for at least one substance based on standard samples and taking the ratio of an at least two components by unmixing. Bodzin teaches a method for normalization of assay data that can be from a microtiter plate [0126]. Bodzin teaches unmixing of spectral components [0012] and taking a ratio of at least two components by unmixing [0047] using a computer. At the time of the invention it would have been obvious of a person of ordinary skill in the art to utilize the teaching of Bodzin in order to normalize data (Bodzin, [0002]).

24. Claim 26, 45, and 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper/Lewis/Drukier further in view of U.S. Patent No. 5,292,484 to Kelln et al. ("Kelln").

25. For claim 26, Cooper/Lewis/Drukier teach the elements of claim 20. It does not teach that a relative signal intensity is determined from a quotient. Kelln teaches a relative intensity determined from a quotient in which a reading is made by subtracting an offset and then dividing by a reference signal (col. 5, lines 39-42). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the teaching of this quotient in order to compensate for any outside light signals from interfering with readings and the dividing of the reference signal would cancel out any effects due to changes in light intensity.

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26. Regarding claims 45 and 46, Cooper/Lewis/Drukier does not teach a means for determining a relative intensity from a quotient. Kelln teaches a means for determining relative intensity (col. 7 lines 56-58) from a quotient in which a reading is made by subtracting an offset and then dividing by a reference signal (col. 5, lines 39-42). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the teaching of this quotient in Kelln. This would compensate for any outside light signals from interfering with readings and the dividing of the reference signal would cancel out any effects due to changes in light intensity. Regarding taking an average over a plurality of samples, this is common practice in measuring signal from a sample.

27. Claims 33, 34, 35-38, 52-54, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper/Lewis/Drukier further in view of U.S. Patent No. 4,800,279 to Hieftje et al.

28. For claim 33, Cooper/Lewis/Drukier teaches carrying out a summation of the detection channels as discussed for claim 20. Cooper does not teach carrying out a spectral weighting between a plurality of detection channels and carrying out a summation of the weighted channels of the signals of the detection channels. Hieftje et al. teach a method of near infrared evaluation of physical properties of samples in which absorbance is measured and then corrected by the corresponding weighting constants (Abstract, lines 7-8). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of weighting constants of Hieftje with the teaching of Cooper to carry out a spectral weighting of the detection channels so

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that the portion of the wavelength that will accurately quantify the property being measured is used (col. 6, lines 46-47).

29. Regarding claims 34 and 38, Cooper/Lewis/Drukier does not teach wherein a weighting curve of the weighted channels is a straight line. Hieftje shows in Fig. 1 of actual heat of formation vs. near infrared heat of formation. This is a "calibration curve" plotting predicted and actual values which is shown in a straight line and capable of being adjusted. At the time of the invention it would have been obvious to a person of ordinary skill in the art to create a weight curve of the weighted channels in order to correlate data.

30. Regarding claim 35, Cooper teaches processing signals with a computer but is silent wherein signals of detection channels are converted and digitally read out, and the weighting and summation are carried out digitally in a computing device. Drukier teaches a photon detector which can be applied to the detection of samples in microtiter plates (col. 49 lines 60-62). Drukier teaches wherein signals of detection channels are converted and digitally read out (col. 6 lines 23-28). At the time of the invention it would have been obvious to a person of ordinary skill in the art to convert and digitally read out signals so that they could be stored digitally.

31. Regarding claims 36 and 37, Drukier teaches a summation carried with analog data processing by means of a resistor cascade (multiplexed, col. 55 lines 12-19) capable of being adjusted. At the time of the invention it would have been obvious to a person of ordinary skill in the art to sum or weight signals by means of a resistor cascade to handle multiple signals.

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32. Regarding claim 52, Cooper does not teach a means for carrying out a spectral weighting between a plurality of detection channels and carrying out a summation of the weighted channels of the signals of the detection channels. Hieftje et al. teach a method of near infrared evaluation of physical properties of samples in which absorbance is measured and a means for correcting the corresponding weighting constants (col. 5 lines 38-43). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the teaching of weighting constants of Hieftje with the teaching of Cooper to carry out a spectral weighting of the detection channels so that the portion of the wavelength that will accurately quantify the property being measured is used (col. 6, lines 46-47).

33. Regarding claims 53 and 57, Cooper/Lewis/Drukier does not teach wherein a weighting curve of the weighted channels is a straight line. Hieftje shows in Fig. 1 of actual heat of formation vs. near infrared heat of formation. This is a "calibration curve" plotting predicted and actual values which is shown in a straight line and capable of being adjusted. At the time of the invention it would have been obvious to a person of ordinary skill in the art to create a weight curve of the weighted channels in order to correlate data.

34. Regarding claim 54, Cooper teaches a means for processing signals with a computer but is silent to a means for converting and digitally reading out signals, and the weighting and summation are carried out digitally in a computing device. Drukier teaches a photon detector which can be applied to the detection of samples in microtiter plates (col. 49 lines 60-62). Drukier teaches a means for converting and digitally

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reading out signals of detection channels (col. 6 lines 23-28). At the time of the invention it would have been obvious to a person of ordinary skill in the art to convert and digitally read out signals so that they could be stored digitally.

Response to Arguments

35. Applicant's arguments, see p. 8, filed July 25, 2008, with respect to the claim objections of claims 34 and 53 have been fully considered and are persuasive. The claim objections of claims 34 and 53 have been withdrawn in view of Applicant's amendments.

36. Applicant's arguments, see p. 8, filed July 25, 2008, with respect to the claim objections of claims 41-43, 48 and 53 have been fully considered and are persuasive. The claim objections of claims 41-43, the claim objection is overcome in view of Applicant canceling the claims. The claim objection of claims 48 and 53 is overcome in view of Applicant's amendment.

37. Regarding claim rejections of claims 20 and 39, the rejections are overcome in view of Applicant's amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CHONG whose telephone number is (571)270-3718. The examiner can normally be reached on Monday through Friday, 7:30 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DC/

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797